Thompson, Paul and Parker, Rachel and Cox, Stephen (2015) The digital entertainment industries and beyond. In: Putting Labour in its Place. Critical Perspectives on Work and Employment . Palgrave McMillan, Houndmills, Basingstoke. ISBN 9781137410351 (In Press) ,

The Digital Entertainment Industries and Beyond; Verso[*]

Paul Thompson, University of Strathclyde, Glasgow

Rachel Parker and Stephen Cox, Queensland University of Technology

The chapter draws on research that situates development studios – games and visual effects (VFX) – in the global value chain, concerned with issues of control and value capture faced by small and medium-sized producers of digital entertainment products. In the context of the relevant industries, it shows how mainstream global value chain (GVC) perspectives are unable to deal with asymmetric power relations between capitals and between capital and labour. A preliminary model of value and power dynamics is developed that goes beyond complexity of information exchange, codifiability and competence of the supplier base (cf. Gereffi et al., 2005), in part by incorporating labour power – value inputs, agency and impacts – more fully into the framework. The chapter is, therefore, a contribution both to developing less workplace-centric versions of labour process theory and exploring it compatibility with value chain models that have a more radical intent restored.

Problems and Problematics

Locating and explaining the dynamics of work relations at workplace level has become progressively more challenging as intra- and inter-organizational relations have become more complex, employment systems more fragmented and business environments subject to continual restructuring within national and global contexts. The need for revised conceptual frameworks has also been driven by recognition of the limits of single, workplace or company case studies and the need for multi-case, multi-levelled approaches. It is within such problematics that the particular challenge for labour process theory (LPT) can be situated. Though mainstream LPT has always been framed in terms of the causal pathways between capitalist political economy (CPE) and work/employment relations, it has often

[*] **CHAPTER 3 of** K. Newsome, P. Taylor, J. Bair and A. Rainnie. (eds.) *Putting Labour in its Place: Labour Process Analysis and Global Value Chains*, Houndmills, Palgrave Macmillan. ISBN: 9781137410351.

This extract is taken from the author's original manuscript and has not been edited. The definitive, published, version of record is available here: http://www.palgrave.com/page/detail/Putting-Labour-in-its-Place/?K=9781137410351

lacked the meso-level research tools needed to bridge the gap. Despite favouring industry-level analysis, the links have tended to be made in terms of generic features of capitalism, national varieties or modes of accumulation such as Fordism and post-Fordism.

As this volume reflects, there are a number of options available for making such connections along a GVC-global production network (GPN) spectrum. Building on a small amount of existing research following a similar path (e.g. Flecker and Meil, 2010; Flecker et al., 2013), this chapter opts to explore the extent to which a modified GVC framework is the most appropriate direction. The growing prominence and popularity of GVC analysis has led to some critiques, friendly and otherwise. Some, particularly those influenced by radical economic geography, have focused on the development of an alternative GPN perspective (Coe et al., 2008; Cumbers et al., 2008). Objections to GVC focus on the preference of that perspective for the linear governance structures of lead firms. In contrast, GPN approaches have a much broader scope, with multi-level analyses that examine more fluid networks of power, complex interactions between actors in the creation of value and intra-firm and non-firm actors such as functional groups, labour, consumers and non-governmental organizations. Many of these points are accurate and pertinent. The point with respect to labour is of particular importance for this book. Though there is some recognition that the availability of types of labour (cheaper, more mobile, more skilled) might affect contractual or other aspects of exchange, it is now widely acknowledged that the GVC mainstream neglects labour as a source and/or target of GVC dynamics (see for example, Newsome et al., 2013).

Despite all these criticisms, the essential rationale for exploring the potential for GVC frameworks is precisely their more parsimonious character. LPT needs expanded tools to address more complex industry structures, particularly within globalizing contexts. GPN critiques of GVC frameworks have focused particularly on that parsimony. Yet, Selwyn (2011: 2) is, in our view, rightly sceptical of attempts to 'incorporate all the relevant actors, relationships and network configurations' in a meaningful way in a single framework. For all its imperfections, GVC has offered a theory-building project that can, in principle, link issues of power and value capture to inter-firm dynamics and industry restructuring. There is a danger that LPT would swap a workplace-centric focus for a 'theory of everything'.

Having set out our general intent, the rest of this chapter unfolds as follows. We begin by exploring the expanding emergent commentaries and critiques of the dominant governance model, with the objective of developing a post-GVC model that can address some of the main concerns. The question of labour – the main concern of this volume – is a wider one than governance. We review existing attempts to insert and integrate labour, largely from a GPN perspective, before again setting out some alternatives. Finally, we seek to apply that new approach to labour to the digital entertainment industries. We show that while Australian games development firms are participating to a greater extent in global markets, the power asymmetries along the value chain have resulted in a situation in which they are at a severe disadvantage, with largely negative consequences for labour.

What GVC Doesn't Explain or Explain Well Enough

The governance structure taxonomy developed by Gereffi et al. (2005) has facilitated a significant growth in research and theory building. As is well known, their theory of GVC governance rests on the 'three Cs': complexity of information exchange, codifiability of that information/knowledge and competence/capacity of the suppliers. Whilst all these questions are legitimate, particularly with respect to issues of upgrading (of companies and countries), they lead to a focus on particular linear and dyadic transactions. Power and value are then filtered through a narrow(er) lens. As Gibbon et al. (2008: 323) note, 'the theory of GVC governance suggests that power is a contingent property of only certain types of inter-firm coordination'. A firm-level dyadic focus is thus unable or less likely to 'see' and explain broader changes in the political economy, for example concentration of capital or financialization (Milburg, 2008; Palpaceur, 2008).

<IP>Recent papers from scholars with at least one foot inside the GVC tent have identified some of the underlying reasons for a 'progressive narrowing' of governance and chain constructs from their inception in World Systems and Global Commodity Chain (GCC) frameworks (Gibbon et al. 2008; Bair, 2009). The latter focuses on the influence of 'network epistemologies', particularly those

deriving from embeddedness arguments, originally associated with Granovetter (1985). Without sketching the detail or trajectory, it can be observed that this was premised more on interpersonal relations between actors and on trust as a mechanism of coordination. This kind of analysis was transferred or transposed to inter-firm coordination and networks were presented as a governance form in their own right, distinct from markets and hierarchies. Such analyses tended to 'privilege the local':

> … because these are the contexts in which we can see at work the social structure that is at the explanatory core of the embeddedness paradigm – that is, networks of interpersonal relations. This micro-sociological conception of how social structure shapes economic outcomes produces what Hess (2004) calls an over-territorialized conception of embeddedness that neglects the multi-scalar dynamics of the global economy and the international dimension of contemporary economic organization. (Bair, 2008: 347)

However, a narrowing of the GVC frame is, arguably, more directly influenced by the importing of transaction cost economics than the embeddedness paradigm. In what Gibbon et al. (2008) dub the 'coordination turn', the focus of GVC is narrowed to inter-firm coordination and bilateral dependencies focusing on asset specificity – the core idea underlying the 3Cs. In previous frameworks such as global commodity chain (GCC), transaction costs had been only one factor affecting the organizational and spatial configuration of chains (Bair, 2008: 347). The 3Cs are important, but taken in isolation, or more precisely only or primarily in terms of dyadic interactions, they can be limited or misleading. Taken together, network epistemologies and the 3Cs narrow the frame, 'at the cost of a broader conceptualization of governance dynamics across the chain' (Bair, 2008: 353). Power becomes reduced to coordinative capacity, and key dimensions of the political economy are side-lined.

What of value?

The trend toward a re-configuration of GVC analysis in terms of mainstream economics or some version of economic sociology has had the apparent side effect of moving practitioners' interest away from discussions of 'value' (a topic that an innocent observer might assume should lie at the heart of theories of global value chains). (Gibbon et al., 2008: 331)

These authors argue that the question of value has two components: how value is created and how it is distributed. The first has been increasingly ignored, while the latter is largely untheorized, but implicitly or explicitly focuses on shares of final prices captured by actors at different links in particular chains. We can argue about how value is created and calculated, but again the main need is surely to move to a broader understanding of the conditions under which value *capture* takes place. This requires an emphasis on putting capital back in the picture. In the recent period this has tended to fall to researchers focusing on the significance of financialization. A metaphor used by Gibbon et al. (2008) is governance as driving, but who or what is doing it? In the past, lead firm type has distinguished between buyer- (commercial capital) and producer-driven (industrial capital) chains. Whilst a focus on circuits of capital is useful, capital markets have become more important to the picture in the contemporary political economy (Thompson, 2013).

In an overview of macro-economic conditions leading to financialization in global chains, Milburg observes that 'externalization has developed from the logic of vertically integrated markets, with continued competition among suppliers, offloading of risk and increased focus on core competence; all aimed at raising shareholder value' (2008: 434). Palpacuer reinforces that view, arguing that pressures on suppliers from global buyers are no longer stemming only from competitive dynamics in product markets, but from the financialization of lead firms, and that 'intensification in corporate reporting to financial markets induced a more stringent monitoring of suppliers' performance based on formal systems of supplier relation management' (2008: 399). Financialization is only one, albeit significant, dimension of the need to focus on how actually existing capital shapes and constrains inter-firm relations at points in the chain. This process will be explored further with respect to digital entertainment industries later in the chapter.

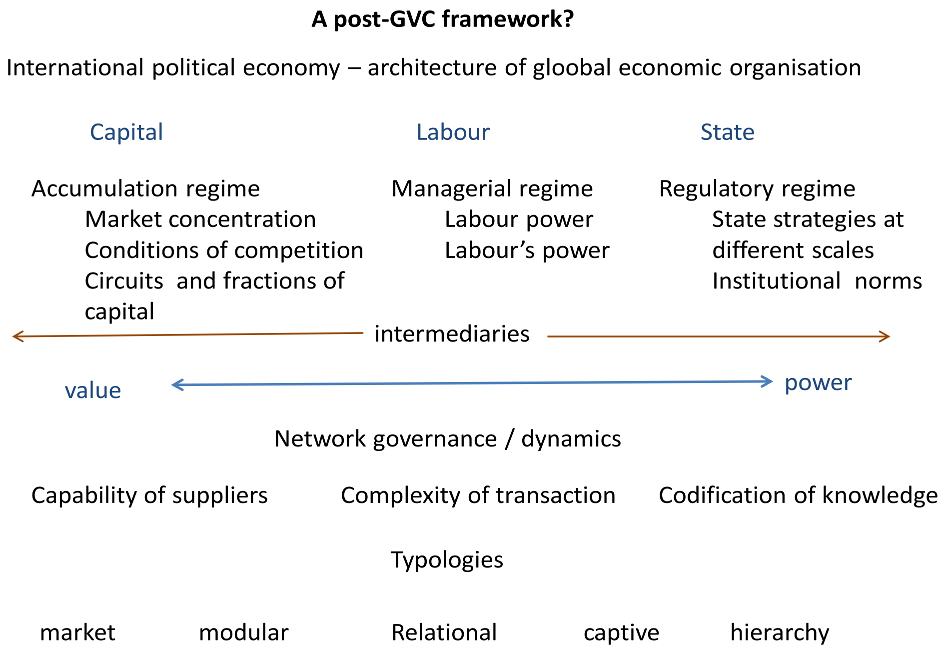
Beyond (More) Missing Links – a Post-GVC Framework?

<UIP>We began this chapter by referring to the omission or marginalization of labour in GVC and related frameworks. Bair (2008: 347) argues that it is necessary to go back to World Systems Theory to find a focus on labour in and beyond transaction costs. The immediate predecessor of the GVC theory, GCC analysis, was framed in terms of upgrading within the international division of labour and studies tended to deal only indirectly with the impact on labour from buyer-driven commodity chains. The problem is that in a focus on upgrading or dyadic inter-firm relations, the experiences and interests of labour tend to be subsumed within consideration of the supplier position (Palpaceur, 2008: 402)..

As we shall see in the following section, the neglect of labour has been partly rectified, at least in broader GPN literatures. Picking up on this point however, Smith (2014: 1) argues that, 'the same cannot be said for analyses of the state'. He accepts that there has been some recognition of institutional and regulatory frameworks that add the state as an actor, particularly in promoting or constraining upgrading. However, Smith persuasively argues that it is not enough to consider the state as part of the context, for this 'has not provided a framework for understanding the articulation between state regulation, production networks and the wider accumulation strategies of which they are a part' (2014: 2).

Where do all these missing links and misconceptualizations leave us? In the two papers from Gibbon et al (2008) and Bair (2008) that we have drawn from, the answer sometimes seems to be a preference for returning to some kind of GCC analysis, or scaling down the by now ubiquitous governance categories/typology of Gereffi et al. (2005) to a 'methodology' that can be enacted within different theoretical perspectives. However, it is not entirely clear what GVC as methodology option entails, and a danger would be that it evades questions about what would enable GVC categories to support better explanation. The diagram below sketches the outlines of an alternative. It seeks to elaborate a bigger 'chain' picture without falling into a multi-factor 'theory of everything'. Furthermore, it is broadly consistent with Gibbon et al.'s (2008: 333) call for moving away from viewing governance simply as a combination of specific 'coordination' issues between firms, and towards viewing governance more in the context of other factors such as firm size, market share and external regulatory environments.

Figure 3.1 A post-GVC framework



In identifying issues concerning capital, labour and the state, the aim is to focus on prior 'driving' questions that help to locate or frame inter-firm relations across the whole chain, irrespective of what the concrete empirical focus is within particular parts. So, for example, what is the extent and character of market concentration; how financialized are the lead firms; and is there identifiable strategic coupling between lead firms and state actors? In particular, it is important to restore some of the earlier emphasis on lead firms and their 'external' relations, given that the 'lead firms have continued to dictate the terms and conditions of participation in networks and chains through different types of governance that act upon participants "at a distance"' (Neilson et al., 2014: 2). Four further points need to be made concerning this mapping. First, there is no intent to present or develop a totalizing model along the lines of regulation theory, in which integrated structures all function to reproduce capitalism. Domains should be treated as distinctive entities with various degrees of connection and disconnection (see Thompson, 2013). Second, though these entities have their own trajectories, they are overlapping and part of the challenge is to provide, for example, 'a framework for understanding the articulation between state regulation, production networks and the wider accumulation strategies of which they are a part' (Smith, 2014: 2). Fifth, the value-power line is there simply to indicate that the interplay of material and symbolic power resources and value capture takes place in the spheres between and within the macro regime and 'localized' network governance dynamics.

Part of the process that links domains together is the enhanced role of intermediaries such as consultants, labour market agencies and standard-setters (Coe and Jordhus-Lier 2011; Neilson et al. 2014). As the latter note, 'These firm and non-firm intermediaries not only bridge and connect different value chains and production networks, but also offer other unique inputs, mostly intangible in nature, to make those networks work' (2014: 2). Third, capital, labour and the state are neither simply context nor background noise that can be bracketed out or only considered if the 'first cut' does not find the predicted governance patterns (Sturgeon in Bair, 2009: 357). These domains are *always* implicated in chain dynamics, though in different ways and to different extents. Fourth, what we are presenting here is to be understood as a two-way street rather than a set of top-down influences. To quote Neilson et al. (2014: 3) again, 'GVCs/GPNs impact recursively within the arenas in which they are connected' and this might include anything from pressure on the state to liberalize wage policies or to enhance research and training infrastructures. In sum, if these four points are taken into consideration when considering second order questions about governance and asset specificity within dyads, or any other interactions within a chain segment, better explanations of chain dynamics are possible. That is not to say that the '3Cs' are simply left intact. Conceptualizations of power and value need to be strengthened, and, pertinent to this chapter, a stronger sense of labour characteristics needs to be folded into categories such as supplier capability and codification. Whether the existing five governance typology is sustainable or will need modification is a question that can be left open to further research and theory building.

In this short explanation of the diagram, little mention has been made of labour because the rest of the chapter explores that dimension.

The Labour Problem(atic)

We have already noted the omission or marginalization of labour in GVC analysis. The partial and more recent exception focuses on upgrading, particularly in the context of the 'Capturing the Gains project' (http://www.capturingthegains.org/). Any attention paid to labour issues is welcome and such interventions are normatively linked to a decent work agenda associated with the International Labour Organisation and other global bodies. However, these tend to be questions framed by an economic development agenda that is not necessarily coextensive with a labour focus per se. Furthermore, there is a naivety in some of the assumptions that 'moving along the value chain' and ensuring greater value capture is necessarily or predominantly associated with favourable outcomes for labour through various types of upgrading and higher skill content of jobs.

Whatever the merits or otherwise of this approach, it is in GPN debates that one finds a more appropriate starting point for a more detailed examination of the labour problematic. As Coe and Jordhus-Lier (2011) note in their excellent overview, much of that debate has been initiated and sustained by labour geographers, with many, especially in the first phase, determined to 'celebrate the agency of labour' and identify forms of 'heydays' and collective resistance. Two papers in the GPN and labour debate (Cumbers et al., 2008; Selwyn, 2011) are particularly pertinent as they have some engagement with labour process themes. Cumbers et al. (2008: 371) argue that traditional (GVC/GPN) approaches are capital- and state-centric. Both papers want to go further than inserting labour as an additional actor. Selwyn argues for seeing labour as having a co-constitutive role in capitalist development. Drawing on autonomist Marxism, Cumbers et al. go further, placing labour agency, exploitation and class conflict at the centre of GPN dynamics. Though formulating their positions on agency in slightly different ways, both papers suggest that there are two dimensions to the way that the labour problem inserts itself into the logic of accumulation. On the one hand, there is the way in which abstract labour or labour power is mobilized, controlled and organized to produce the surplus. On the other are attempts by labour to leverage its positionality within relevant chains/networks to increase its share of the surplus. Setting aside the assumption – deriving from the labour theory of value – that abstract labour is the sole source of the surplus, this leads to a useful distinction between labour power and labour's power.

What is more contentious are the imputed connections between the processes. Labour power, agency and resistance are placed at the centre of capital accumulation. This is expressed in different ways in the two papers. For Selwyn (2011), labour regimes are the defining feature of GPNs and stretch from the workplace to commodity specialism and the whole sphere of social reproduction. Cumbers et al. (2008) meanwhile argue that 'capital is viewed as responding to the problem of labour control' (372) and is always 'in flight from labour', responding to the problem of value extraction from labour in production. It might seem odd for us to argue that LPT puts or should put less emphasis on labour or at least labour control, but a brief re-cap of some theoretical context might help. Second wave LPT was built around control and resistance models, so such emphases have clear echoes. However, mainstream LPT tends not to make such expansive claims about labour regimes. Following the notion of the relative autonomy of the labour process (Edwards, 1990), most researchers focus on the role of labour agency and capital-labour dynamics as a key driver of *workplace* social relations, avoiding any necessary connection to issues concerning the reproduction of capitalism as a whole. To make our critique of the positions in the two papers clear, focusing on exploitation and control of labour as *the* defining feature of capitalist development repeats a mistake made in earlier debates concerning the need to understand the role of the full circuit of capital in regimes of accumulation. In other words, whilst labour control is an integral feature of the transformation of labour power into profitable labour, it would be a mistake to define GPNs or GVCs solely or primarily as labour control regimes. One danger is that analyses move from being firm-centric to firms (and capital) being largely absent. As Coe and Jordhus-Lier (2011: 221) note, 'A fundamental starting point for a reassessment of labour agency has to be the changing nature and scale of the organisation of capital'.

There is a second problem concerning labour agency. Despite complaining that such agency is often conflated with trade unions as collective actors (Cumbers et al., 2008: 371), union strategies in the global economy is the empirical focus of that paper. Selwyn (2011: 18), similarly, utilizes a broader frame that is concerned with the 'experiences of working class formation in zones of commodity production'. There is nothing wrong with focusing empirically on such matters, but it may not be relevant to issues of labour agency in many workplaces. Researchers within a labour process and radical political economy tradition need to allow for the fact that 'positionality in relation to processes of value capture' (Cumbers et al., 2008: 373) may give little or no leverage to labour as a collective, organized actor, or that workers may choose not to exercise leverage collectively. Or to put it in Selwyn's favoured terminology, structural power at work may be associated with weak associational power.

In the absence of collective mobilization, that may mean that a local story in parts of a chain/network may be about impacts *on* labour. That does not mean that labour agency is irrelevant or marginal in struggles over value. LPT is premised on the indeterminacy of labour. Labour power is always both acted on and active in that struggle In general, however, there is a need to be clearer about what explanatory problem inserting labour is seeking to solve. We would distinguish between three categories: inputs, impact and agency. Labour may not often co-determine GVC/GPN dynamics, but labour power (cost and characteristics) is a significant input in decisions on sourcing and location, and issues of skill utilization, control and work intensity are central to value capture and distribution. Such processes overlap into the sphere of impacts. GVC analyses in particular need to do more to show how the division of labour along value chains and changes in work flows impact on employment relations and work practices' (Flecker et al., 2013). Contrary to the largely optimistic upgrading narrative, work externalization, subcontracting and other processes frequently lead to deteriorating work conditions at the base of the chain (Palpaceur, 2008: 401–405). Nor is it confined to that end. Flecker and Meil (2010: 694–695) demonstrate how even in industries such as software development, upgrading in service providers may lead to restructuring and job insecurity in the core firm.

With respect to agency, it is important that discussion does not simply become another territory to re-run mobilization and/or resistance debates. Whilst there is of course scope to apply concepts such as resistance, reworking and resilience to agency in chains and networks (see Coe and Jordhus-Lier, 2011: 216–218; Coe, 2013), a more concrete approach would draw on the relations between structural and associational power adapted by Selwyn (2011) from Erik Olin Wright. A framework of this sort has been recently outlined by Lakhani et al. (2013). Extending the 'configurational' approach embodied in Gereffi et al.'s' governance typology, the authors 'argue that employment relations systems in GVCs need to be assessed on the basis of their specific configurations of firm interdependencies, task complexities and supplier capabilities' (7). They go on to develop employment system propositions allied to the five governance types. Such an approach has the definite advantage of integrating labour issues more closely into the 3Cs – complexity, codifiability and competence. However, it also suffers from the limitations of its 'parent'. Despite some reference to employment relations across chains, the focus remains on 'coordination between two links (or firms) in a chain' (8). The proposed micro-level configurations therefore suffer from the same problem – the bigger picture is bracketed off. As a result employment relations outcomes tend to be read-off from the dyadic relationship – for example, the assumption that (relational) chains that involve complex tasks performed by skilled workers are likely to offer stable employment. The problem with this assumption is that employment stability is not primarily a property of the dyadic relationship, as we shall see in the next section. The larger industry and political economy contexts matter, and with this in mind, the final substantive section below returns to the two industries – VFX and games – to make some first and second order observations about labour.

Making the Link in High-Tech Creative Industries

We examine these issues further in the context of research into two digital content based entertainment industries – visual effects for films, and games for both consoles and mobile devices. In both industries, data was gathered primarily through over 80 semi-structured interviews in two stages. In the first stage, interviews with firm owners were wide ranging and covered the range of issues necessary to identify key dynamics of the industry associated with financing, design, production and distribution and how these dynamics were affected by the structure of the global industry and international market developments. The interviews with employees/developers were also wide ranging and focused on the nature of work and employment within the industry as well as the nature of the labour process, covering hours of work, conditions of employment, levels of autonomy and how these were affected by the nature of the industry context as described in the first round of interviews.

Visual effects and games are now massive global industries. Digital entertainment is a particularly appropriate sector for GVC analysis. The task components of such 'immaterial' commodities can be allocated on a truly global basis, even to the margins. For example, with spiralling game development costs, increased competition and pressure to speed up the development cycle, publishers are taking advantage of digitalized technologies to (out)source work to an increasingly spatially dispersed 'network' of developers. As a consequence we can observe not only vertical but virtual integration of ownership and activities. Within these processes, conglomerate corporations form part of a shared ecology with 'SMEs, connected through a myriad of horizontal relationships in specific locations' (Fitzgerald, 2014: 1).

Gereffi et al. (2005) argue that the concept of a 'relational value chain' best describes the governance models of global value chains in industries in which there is 1) an exchange of complex information that cannot be codified and therefore relies on factors such as reputation and trust-building; 2) transactions are complex; and, 3) supplier capabilities are high. On the surface this mirrors the characteristics of the VFX industry, which involves the provision of a service which is difficult to specify in advance, depends on ongoing communication and negotiation between the service provider and customer throughout the process of service provision, and in which the creative and technical capabilities of service providers and their employees are high. Furthermore, these capabilities are difficult to replicate in that they depend on prior experience in completing projects within the very limited Hollywood market and the time-consuming development of relationships with Hollywood producers. As with the VFX industry, the console games industry is characterized by repeated information exchange between developers and publishers/console manufacturers throughout the development process, and repeat business (rather than arms-length transactions) is the norm (Johns, 2006; Kerr, 2006).

Despite the appearance of a relational value chain with implied horizontal networks and dispersed power and opportunities for value capture, both industries demonstrate features of concentration and bottleneck (Jacobides et al., 2006; Parker et al., 2014). For example, the power of Hollywood studios is extensive at all points of the value chain from writing to distribution. Within the global film value chain, the production sector, of which VFX is a part, remains relatively independent from these media conglomerates in the sense that there are a large number of semi-independent production companies, although these companies remain dependent on the media conglomerates for finance and distribution (Coe and Johns, 2004). Australian VFX firms operating in the Hollywood global film production network are required to form close relations with Hollywood VFX supervisors and producers in order to facilitate complex information exchange regarding the nature of the VFX images and services. However, their relational interactions are moderated by the bottleneck position of Hollywood media conglomerates and therefore characterized by unequal power relations. As such, VFX firms struggle to capture value in these negotiations.

In the games industry, the console manufacturers and games publishers are positioned in the central regional locations of the USA, Japan and Europe and clearly dominate the industry. There is a trend in industry concentration amongst publishers who play an important role in connecting games developers to global markets (Johns, 2006; Kerr, 2006; Martin and Deuze, 2009). Games developers create software titles that are played on specific console platforms. There is a complex competition for value capture between console manufacturers, publishers, development studios and retailers. Development studios are both the creative core and the weakest link in the chain, relatively isolated in terms of network connectivity and largely dependent on publishers for finance. Publishers, sometimes collaborating or overlapping in ownership with console manufacturers, are the fulcrum of power. This power is focused on market concentration, control of intellectual property rights, access to finance, transfer of risk and greater mobility/switching capacity. Industry concentration increased from the 1990s as game production costs escalated and firms sought economies of scale through acquisitions of successful independent developers. The dominant business model for Australian firms has traditionally been as second-party developers and working on licensed products.

After a period of significant expansion and maturation, the industry restructured and underwent a shake-out in the context of the global financial crash (GFC). This led to many closures and further concentration, with a smaller number of mid-sized firms servicing the console market and a new array of micro firms entering the casual gaming segment. This segment in principle offered up possibilities of different governance dynamics in the value chain, given lowered barriers to entry, formal independence during the development process and a move towards transactional, arms-length relations. However a different basis for unequal bargaining power has emerged. The gatekeeper role of publishers has shifted but remains as quality controller. Lead firms (notably Apple and Google) are setting standards designed to make it hard for developers to switch between platforms, maintaining their bottleneck position that lock developers in to particular devices. Lead firms benefit from a combination of limited competition within the segment and intense competition amongst suppliers (Parker et al., 2014).

In digital entertainment, there are value capture options available. Upgrading might involve 'moving into content' through various means of capturing intellectual property rights, for example in a film project. This would normally involve some version of 'going global'. Successful Australian VFX firms such as Animal Logic have committed significant resources to developing and maintaining relationships with critical Hollywood decision makers, including establishing offices in Los Angeles. This would be consistent with relational value chains in which reputational networks depend, in part, on close, face-to-face, repeated interactions between the key players. However, this path is a distinctly minority one, only available to the 'big boys' who have close networks with the Studios and a track record delivering on large VFX projects. For the vast majority of development studios reputation is established primarily through market considerations associated with quality and cost and this is a very unequal struggle. These are professional service firms whose costing structure normally involves a fixed fee, whereby the risk lies with them rather than the buyer if work is unable to be completed within budget. A major issue for the service firm is how to cost variations which the director or producer often request when they are not happy with the product as projects unfold. 'Intangible service delivery' may be relational, but those relations are sufficiently hierarchical to place major constraints on capturing the value they create in films and games.

Labour in Digital Entertainment

Development studios in both industries are the creative core, but they are also the weak link in the struggle for value capture between the major actors. A fundamental issue is one of risk and its transfer. Though referring to a broader set of cultural commodities in audio-visual industries, Fitzgerald (2014) confirms the point in the observation that the majority of the costs and risks of production are borne by a myriad of relatively smaller, flexible and therefore often expendable firms. The core of this dynamic arises from the fact that supplier firms are constantly pitching for new work and trying to build reputation and trust with buyers. Yet VFX and games are characterized by a high degree of uncertainty regarding how the potential product will evolve during the course of development and therefore on the process of managing contract variation. This puts a premium on processes such as budgeting and time scheduling. Yet, what has often been neglected is the ways in which those issues of costs and risks are reflected and reproduced in the management of work and employment relations in the supplier firms. So, for example, where developments studios are paid a fixed sum in a negotiated production contract with periodic advances throughout the development process, under-pricing and over-promising are persistent problems that shape contract variation. As a result, a portion of that risk is transferred to labour, given that creative labour power – high quality work at lower and controlled costs – is predominantly what the firm is selling to the corporate buyer. In other words, we have to recognize the links between winning work and constraints on labour *at* work.

Interviews with employees in development studios reveal that the uneven power struggle between firms in the value chain and the subsequent cost pressures have significant effects on and in the workflow. These take three main forms. First, there are tightened controls. Complex tasks cannot be cannot be micro-managed, but within the delivery of projects oversight and direction can be strengthened. Respondents in both industries referred to what might be termed a system of dual control, whereby the firm manages relations with the client or its agent (for example an independent VFX supervisor acting on behalf of a Hollywood major) and exerts greater control over quality and costs within the project teams. This is typically expressed in the form of mini-hierarchies within functional groups (e.g. compositors, coders, artists) led by directors or overall supervisors. Employees made frequent reference to greater accountability to and interference by external agents, with the pipeline or workflow increasingly structured according to 'milestones' and organized through what one employee described as a 'strictly hierarchical structure'. Such trends are confirmed in other studies; Deuze et al. (2009: 350) refer to 'tighter supervisory procedures' and 'multiple milestones'.<

Second, there is enhanced specialization. Within firms, there are still generalists as well as specialists, but with added complexity and the need for speed and reliability comes pressures to divide tasks and streamline the sequencing

> It's definitely got more specialized. In the past you needed to have a broader skill set … But now there is literally a person for everything … and you can just focus on your niche and just improve your skill set in that area, just to be more productive. (VFX employee)

Third, there is the squeezing of additional effort from the collective creative process. Work intensity has traditionally been temporally uneven with that squeeze focused on extra hours and effort during 'crunch time' at the end of projects. This still continues in some companies and projects, but many respondents also reported faster work pace and pressure to 'do more with less' (games employee) and accomplish 'a lot more work in the same, if not less time' (VFX employee). The link to power asymmetry and contract variation is made clear in this observation from a VFX employee in a different firm: 'So there's a constant battle going on when companies just try to get jobs for less pay in total, which again forces them to deliver more work in less period of time and with less people'.

What do these trends mean for categories outlined in the previous session? Labour power issues are connected to the input and impact dimensions. The latter has been outlined through the triple trends just discussed. In terms of input, we have not dealt with the availability of qualified labour and its relationship with locational and sourcing issues. Our focus has been the centrality of labour power characteristics to 'supplier competence', to managerial intervention in the labour process and to the ability of development studios to deliver on their 'relational' exchanges with lead firms that occupy a dominant or bottleneck position in the chain. One of the outcomes of this particular dynamic is a certain degree of standardization and specialization, or what Flecker et al. (2013: 14) refer to as a tension between the 'circulation and codification of knowledge'.

As for labour's power and agency issues, games and VFX workers have traditionally occupied a relatively advantageous structural position so that associational power was largely unnecessary. In the early growth stages of both industries, a mainly young, internationally mobile and male talent pool was able to leverage expertise and mobility to access high tech, high status employment. Traditionally that mobile labour force was able to utilize exit to other firms and technology intensive sectors rather than voice. However, a combination of the global financial crisis and the concentration of power in the two chains has led to greater instability and insecurity. We undertook our interviews in games firms after the financial crisis, which led to a significant shake-out in the industry, involving tighter budgets, shrunken workforces and disappearing or downsized firms. Our interviews revealed a clear trend of weakening work and industry attachments, if not organized opposition. Our interviews with VFX workers were undertaken prior to the equivalent restructuring and shake-out, so industry attachments were still relatively strong. Yet there have been subsequent rumblings of discontent and collective action as conditions worsen (for example see http://vfxsolidarity.org/; http://vfxtippingpoint.blogspot.co.uk/).

<H1>**Conclusions**</H1>

Whilst we agree with Bair (2008) and Taylor (2010) that there is value in GCC, GPN and GVC frameworks, and that their usefulness will depend on which scalar level or theoretical issue is being addressed, we have chosen to explore relations between modified GPN categories and LPT. The main reason is that in moving away from workplace-centric orientations, LPT has needed conceptual and methodological tools at a meso-level more than it has needed to become part of an all-encompassing theory-building project (that GPN has a tendency towards). In our review of the GVC framework and its application to digital entertainment, we have been very critical of the limitations of its conceptual categories. As we indicated earlier, using the Gereffi et al. framework, these industries should resemble relational governance, but they don't. In our view, this is a conceptual rather than a category error and one that cannot be rectified by reclassifying the governance dynamics found in these chains as modular or captive. However, we remain open to further exploration of whether a revised, multi-level approach offers a way forward. Our contribution to that offers a preliminary heuristic that adds an explanatory layer focusing on a 'higher' level of 'governance' that would compel investigations of chain dynamics (dyadic or otherwise) to consider core questions on capital, state and labour influences and interactions.

Implicit in the above is a contribution to the development of LPT and its capacity to engage in industry level analysis at a global(izing) level. Part of that reorientation is situating LPT more clearly as part of the 'family' of radical political economy approaches, as well as a mainstay of the sociology of work. Part of what LPT brings to the political economy table is an extensive track record of research and concept development on labour issues. Bringing insights from that tradition to bear on the burgeoning debate on labour and GVC/GPN is a further contribution, in this case utilizing more careful distinctions between what labour issues are being inserted – inputs, impacts and agency. Again, it remains to be seen the extent to which labour can be successfully integrated into GVC governance categories.

Finally, drawing from more detailed examinations elsewhere (Parker et al., 2014), we have sought to make a contribution to understanding particular value chains in digital entertainment industries. VFX and games are particularly useful in offsetting the developmental/upgrading bias in much of the historical and contemporary literatures. The production of these digitalized commodities can be sourced anywhere that capabilities exist, and the buyer-supplier relations are almost wholly in 'advanced' post-industrial economies. In particular it is valuable to have accounts of value capture and (sometimes worsening) conditions of labour 'up the chain'. The picture is necessarily partial given that the focus is on specific chain segments. For example, we concentrated here mainly on console games rather than casual games for smartphones (see Parker et al., 2014). If the value chain of, say, the iPhone is the focus, a quite different picture of value and labour emerges. As Clelland (2014) shows, whilst the monopolistic bottleneck position of Apple and its ability to capture the majority of the surplus is similar to its equivalent in games, the underpaid or unpaid labour of workers in Asia would be the focal point of labour analysis. This reinforces the general lesson: that meso-level frameworks privilege grounded industry level analysis that can more effectively link macro (CPE) and micro (workplace) relations.

References

Bair, J. (2008) ‘Analysing global economic organization: embedded networks and global chains compared’, *Economy and Society*, 37(3): 315–338.

Bair, J. (2009) ‘Global commodity chains: genealogy and review’, in J. Bair (ed.) *Frontiers of Commodity Chain Research*, Palo Alto, CA: Stanford University Press: pp. 1-34.

Clelland, D. A. (2014) ‘The core of the apple: dark value and the degree of monopoly in global commodity chains’, *Journal of World-Systems Research*, 20(1): 82–111.

Coe, N. (2013) ‘Geographies of production III: making space for labour’, *Progress in Human Geography*, 37(2): 271–284.

Coe, N. M. and Johns, J. L. (2004) ‘Beyond production clusters: towards a critical political economy of networks in the film and television industries’, in D. Power and A. J. Scott (eds) *The Cultural Industries and the Production of Culture*, London: Routledge, pp. 188–204.

Coe, N. M. and Jordhus-Lier, D. (2011) ‘Constrained agency? re-evaluating the geographies of labour’, *Progress in Human Geography*, 35(2): 211–223.

Coe, N. M., Dicken, P. and Hess, M. (2008) ‘Global production networks: debates and challenges’, *Journal of Economic Geography*, 8(3): 267–226.

Cumbers, A., Nativel, C. and Routledge, P. (2008) ‘Labour agency and union positionalities in global production networks’, *Journal of Economic Geography*, 8: 369–387.

Edwards, P. (1990) ‘Understanding conflict in the labour process: the logic and autonomy of struggle’, in D. Knights and H. Willmott (eds) *Labour Process Theory*, Basingstoke: Macmillan, pp. 125–152.

Fitzgerald, S. (2015) ‘Structure of the cultural industries: global corporations to SMEs’, in K. Oakley and J. O'Connor (eds) *The Routledge Companion to the Cultural Industries*, London: Routledge.

Flecker, J. and Meil, P. (2010) ‘Organisational restructuring and emerging service value chains: Implications for work and employment’, *Work, Employment and Society*, 24(4): 680–698.

Flecker, J., Haidinger, B. and Schonauer, A. (2013) ‘Divide and serve: the labour process in service value chains and networks’, *Competition and Change*, 17(1): 6–23.

Gereffi, G., Humphrey, J. and Sturgeon, T. (2005) ‘The governance of global value chains’, *Review of International Political Economy*, 12(1): 78–104.

Gibbon, P., Bair, J. and Ponte, S. (2008) Governing global value chains: an introduction’, *Economy and Society*, 37(3): 15–38.

Granovetter, M. (1985) ‘Economic action and social structure: the problem of embeddedness’, *The American Journal of Sociology*, 9(3): 481–510.

Jacobides, M. G., Kundsen, T., Augier, M. (2006) ‘Benefiting from innovation: value creation, value appropriation and the role of industry architectures’, *Research Policy*, 35: 1200–1221.

Johns, J. (2006) ‘Video games production networks: value capture, power relations and embeddedness’, *Journal of Economic Geography*, 6: 151–180.

Kerr, A. (2006) *The Business and Culture of Digital Games*, London: Sage.

Lakhani, T., Kuruvilla, S. and Avgar, A. (2013) ‘From the firm to the network: global value chains and employment relations theory’, *British Journal of Industrial Relations*, 51(3): 440–472.

Martin, C.B. and Deuze, M. (2009) ‘The independent production of culture: a digital games case study’, *Games and Culture*, 4/3: 276–295.

Milburg, W. (2008) ‘Shifting sources and uses of profits: sustaining US financialization with global value chains’, *Economy and Society*, 37(3): 420–451.

Neilson, J., Pritchard, B. and Wai-chung, H. (2014) ‘Global value chains and global production networks in the changing international political economy: an introduction’, *Review of International Political Economy*, 21(1),: 1-8.

Newsome, K., Taylor, P. and Rainnie, A. (2013) ‘Putting labour in its place: global value chains and labour process analysis’, *Special Issue of Competition and Change*, 17(1): 1–5.

Palpaceur, F. (2008) ‘Bringing the social context in: governance and wealth distribution in global commodity chains’, *Economy and Society*, 37(3): 393–419.

Parker, R., Cox, S. and Thompson, P. (2014) ‘How technological change affects power relations in global markets: remote developers in the console and mobile games industry’, *Environment and Planning A*, 46(1): 168–185.

Selwyn, B. (2011) ‘Beyond firm-centrism: re-integrating labour and capitalism into global commodity chains’, *Journal of Economic Geography*, 12(1): 205–226.

Smith, A. (2014) ‘The state, institutional frameworks and the dynamics of capital in global production networks’, *Progress in Human Geography*, Published on-Line 7 February 2014, *doi:10.1177/0309132513518292*

Taylor, P. (2010) ‘The globalization of service work: analysing the call centre value chain’, in P. Thompson and C. Smith (eds) *Working Life: Renewing Labour Process Analysis*, Basingstoke: Palgrave Macmillan, pp. 244–268.

Thompson, P. (2013) ‘Financialization and the workplace: extending and applying the disconnected capitalism thesis’, *Work, Employment and Society*, 27(3): 472–488.